

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/008254

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ A61K35/14, A61K9/70, A61L15/44, A61P17/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A61K35/14, A61K9/70, A61L15/44, A61P17/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI (DIALOG), PubMed, JOIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 7-59840 A (Terumo Corp.), 07 March, 1995 (07.03.95), Full text; Claims; examples 4, 5 (Family: none)	2, 3 1-82
X Y	JP 2002-531532 A (Johnson & Johnson Medical Ltd.), 24 September, 2002 (24.09.02), Full text; Claims; examples & GB 2345519 A & WO 00/33893 A1 & AU 2000/15770 B & EP 1053029 A1	2, 3 1-82
X Y	JP 8-224293 A (Sanfaibu Kabushiki Kaisha), 03 September, 1996 (03.09.96), Full text; Claims; examples 1, 2 (Family: none)	2, 3 1-82

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
07 September, 2004 (07.09.04)

Date of mailing of the international search report
28 September, 2004 (28.09.04)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 5-43453 A (Sumitomo Pharmaceuticals Co., Ltd.), 23 February, 1993 (23.02.93), Full text; Claims; examples 1 to 3 (Family: none)	2, 3 1-82
X Y	JP 6-500802 A (AMGEN INC.), 27 January, 1994 (27.01.94), Full text; Claims & EP 518697 A2 & WO 92/22304 A2 & AU 9221926 B & US 5418222 A	2, 3 1-82
X Y	JP 2003-10301 A (Ed Geistlich Söhne AG Für Chemische Industrie), 14 January, 2003 (14.01.03), Full text & EP 1252903 A1 & AU 2002/35618 B & CA 2383636 A1 & US 2002/160036 A	2, 3 1-82
Y	US 5510102 A (UNIV CALIFORNIA), 23 April, 1996 (23.04.96), Full text & WO 96/23039 A1	1-82
Y	JP 11-239609 A (Sekisui Chemical Co., Ltd.), 07 September, 1999 (07.09.99), Full text (Family: none)	1-82
Y	WO 96/27397 A1 (QUANTIC BIOMEDICAL PARTNERS), 12 September, 1996 (12.09.96), Full text; Claims & AU 9654166 B & EP 813427 A1 & JP 11-502435 A	1-82
Y	JP 2003-524590 A (Cytomedix Inc.), 19 August, 2003 (19.08.03), Full text & WO 99/66923 A1 & GB 2342046 A & AU 9953122 B & EP 1091735 A1 & US 6303112 A	1-82
Y	JP 2001-508807 A (Bio-Products & Bio-Engineering AG.), 03 July, 2001 (03.07.01), Full text & WO 99/24044 A1 & AU 9911354 B & EP 966293 A1 & US 2002/1624 A	1-82

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 62-501628 A (CURATECH, INC.), 02 July, 1987 (02.07.87), Full text & WO 86/3122 A1 & AU 8550949 B & EP 202298 A1 & CA 1261259 A1 & GB 2248777 A & US 5165938 A	1-82
Y	KALKA, C. et al., 'Transplantation of ex vivo expanded endothelial progenitor cells for therapeutic neovascularization.', Proc. Natl.Acad.Sci.USA, (2000), Vol.97, No.7, pages 3422 to 3427	1-82
Y	ZHAO, Y. et al., 'A human peripheral blood monocyte-derived subset acts as pluripotent stem.cells.', Proc.Natl.Accad.Sci.USA, (04 March, 2003 (04.03.03)), Vol.100, No.5, pages 2426 to 2431	1-82
Y	VALBONESI, M. et al., 'The role of autologous fibrin-platelet glue in plastic surgery: a preliminary report', Int.J.Art.Organs., (2002), Vol.25, No.4, pages 334 to 338	1-82
Y	JP 2001-204807 A (Gunze Ltd.), 31 July, 2001 (31.07.01), Full text (Family: none)	24-82
Y	JP 2002-47299 A (Terumo Corp.), 12 February, 2002 (12.02.02), Full text (Family: none)	24-82
Y	JP 7-507558 A (INOTEB), 24 August, 1995 (24.08.95), Full text & WO 93/25215 A1 & FR 2691911 A1 & EP 643582 A1 & US 5618663 A	24-82
Y	WO 99/58172 A1 (ASAHI MEDICAL CO., LTD.), 18 November, 1999 (18.11.99), Full text & AU 9937297 B & EP 1080741 A1 & US 6699388 A	24-82
Y	US 6049026 A (CLEVELAND CLINIC FOUND), 11 April, 2000 (11.04.00), Full text & WO 99/59500 A2 & AU 99/41994 B & EP 1085842 A2 & JP 2002-515288 A	24-82

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International application No.

PCT/JP2004/008254

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/91880 A1 (BAXTER INT INC.), 06 December, 2001 (06.12.01), Full text & WO 02/3909 A1 & AU 2001/63488 B & AU 2001/69493 B & US 2002/113003 A & EP 1300128 A1 & EP 1309384 A1 & US 2003/209479 A	24-82

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 83-90

because they relate to subject matter not required to be searched by this Authority, namely:

Claims 83 to 90 involve methods for treatment of the human body by therapy and thus relate to a subject matter which this International Searching Authority is not required, under the provisions of Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.

2. ☐ Claims Nos.:

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
(See extra sheet.)

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☒ No protest accompanied the payment of additional search fees.

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Continuation of Box No.III of continuation of first sheet(2)

[A] Unity (Continuation of Box No.III)

- | | |
|----------------------------|------------------------------------|
| [1] Claims 1, 24 to 60, 61 | (referred to as invention group 1) |
| [2] Claims 2 to 4 | (referred to as invention group 2) |
| [3] Claims 5 to 7 | (referred to as invention group 3) |
| [4] Claims 62 to 81, 82 | (referred to as invention group 4) |

(1)

Invention groups 1 to 3 are common to each other in relating to a material promoting wound healing which has a porous sheet as a constituent thereof or a method of preparing the same.

Concerning this material promoting wound healing, the invention groups have respective matters for defining the inventions as follows.

- Invention group 1:
having leucocytes and/or platelets (referred to as invention-defining matter 1).
- Invention group 2:
(the material promoting wound healing) being able to proliferate cells (referred to as invention-defining matter 2).
- Invention group 3:
being able to produce a growth factor (referred to as invention-defining matter 3).

However, it is considered that a material promoting wound healing which is made of a porous sheet and contains a drug effect ingredient being able to proliferate cells in the sheet had been already known before the application date of the present case, as pointed out in any of the documents cited in this international search report, for example,

- JP 7-59840 A (TERUMO CORP.) 07 March, 1995 (07.03.95), Full text, Claims, Examples, Test Examples (Family: none)
- JP 5-43453 A (Sumitomo Pharmaceuticals Co., Ltd.) 23 February, 1993 (23.02.93), Full text, claims, Examples, Experimental Examples (Family: none)
- JP 8-224293 A (Sanfaibu Kabushiki Kaisha) 03 September, 1996 (03.09.96), Full text, claims, Par. Nos. [0003], [0022], Examples (Family: none)
- JP 6-500802A (Amjen Inc.) 27 January, 1994 (27.01.94), Full text, Examples 1 to 7 & EP 518697 A2 & WO 92/22304 A1 & AU 9221926 B & US 5418222 A.

Such being the case, it does not appear that there is any characteristic relevancy among the above invention-defining matters 1 to 3 at least in the invention groups 1 to 3. Moreover, it cannot be said that any two of the invention groups 1 to 3 are composed exclusively of inventions having a special technical feature in common. Therefore, these groups of inventions are not considered as a group of inventions so linked as to form a single general inventive concept.

Claims 8 to 23 are each defined depending on the inventions of the invention groups 1 to 3. Thus, it is recognized that each of these claims involves 3 inventions which are not so linked as to form a single general inventive concept.

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(2)

It is recognized that the inventions according to the claims belonging to the invention group 4 relate to a device for preparing a material promoting wound healing as specified in claim 62 as a common matter defining the inventions. Discussing the definition of claim 62, however, no specification is made about the relationship between the porous sheet and the material promoting wound healing. Furthermore, it is never defined therein whether or not the porous sheet has any of the above-described invention-defining matters 1 to 3.

Such being the case, it cannot be considered that the invention group 4 is composed exclusively of inventions having a special technical feature in common to any of the invention groups 1 to 3. Comparing the invention group 4 with each of the invention groups 1 to 3, no such a linkage as to form a single general inventive concept can be observed.

[B] Description of claims

(1)

In claim 24, nothing is specifically defined about the relationship between "a porous sheet capturing at least leucocytes and/or platelets" and a material promoting wound healing, involving the differentiation thereof. Thus, it cannot be said that the definition about the material promoting wound healing, which is the subject to be prepared by the method according to the claim, is clearly defined.

(In this report, "a material promoting wound healing made of a porous sheet capturing leucocytes and/or platelets" was examined as the invention according to claim 24.)

(2)

In the device of the invention according to claim 62, no clear definition is made not only whether the device *per se* or its constituent serves as a material promoting wound healing but also via what steps the material promoting wound healing is prepared with the use of the device.

(In this report, a device wherein blood is poured from an injection inlet so as to allow a porous sheet to capture leucocytes and/or platelets, thereby using the obtained porous sheet as a material promoting wound healing was examined as the invention according to claim 62.)